

CLAIMS

1. A joint material (30) for joining at least one ceramic-based or glass-based spacer (20) to a glass substrate (10), **characterized in that** it comprises an enamel mixed with at least one metal oxide in the form of particles.
2. The material as claimed in claim 1, **characterized in that** it has a resistivity of between  $10^5$  and  $10^{10}$   $\Omega$ .cm.
3. The material as claimed in claim 1 or 2, **characterized in that** the metal oxide particles are stable over time and with temperature up to 600°C at most.
4. The material as claimed in one of the preceding claims, **characterized in that** the metal oxide particles contain one or more of the following elements: Zr, V, Al, Cr, Mn, Fe, Ca, Si, Co, Ni, Zn, Ti, Nb, W, Sb, Pb, Sn, Cu, Ru, Ir.
5. The material as claimed in one of the preceding claims, **characterized in that** the metal oxide is ruthenium oxide.
6. The material as claimed in any one of the preceding claims, **characterized in that** it has a viscosity of at most 50 Pa.s.
7. The material as claimed in any one of the preceding claims, **characterized in that** it includes at least one solvent and some resin.
8. A structure comprising two glass substrates (10, 40) kept apart using spacers (20), the spacers being bonded by one of their ends (21) to at least one

substrate (10), by virtue of the joint material (30) as claimed in any one of the preceding claims.

9. The structure as claimed in claim 8, **characterized**  
5 **in that** the opposite end (22) of the spacers that rests against the other substrate (40) is coated with at least one bonding material (50).

10. The structure as claimed in claim 9, **characterized**  
10 **in that** the bonding material (50) includes the joint material (30).

11. The structure as claimed in one of claims 8 to 10, **characterized in that** the joint material (30)  
15 constitutes a means suitable for making up for a height difference between one end of a spacer and a substrate.

12. The structure as claimed in one of claims 8 to 11, **characterized in that** the spacers may or may not be  
20 electrically conducting.

13. The structure as claimed in one of claims 8 to 12, **characterized in that** the contact resistance of the joint material located between a spacer and a substrate  
25 is negligible compared with the resistance of the spacer.

14. A method of bonding spacers (20) to a glass substrate (10) by means of a joint material as claimed  
30 in one of claims 1 to 7, **characterized in that** the spacers (20) are kept in a fixed position and are covered on one of their ends (21) with the joint material (30), and the glass substrate (10) is placed against said ends (21) of the spacers covered with the  
35 joint material, the entire structure - substrate and spacers - then undergoing an annealing operation.

15. The method as claimed in claim 14, **characterized in that** the opposite end (22) of the spacers (20) that

are joined to the substrate is covered with a bonding material (50) and another substrate (40) is placed against said ends (22) of the spacers, the assembly comprising two substrates and the spacers then  
5 undergoing an annealing operation.

16. The method as claimed in claim 14 or 15, **characterized in that** the spacers (20) coated with the joint material (30) on one or both of their ends (21,  
10 22) are annealed prior to their being joined to the substrate.

17. The use of the joint material as claimed in one of claims 1 to 7 in the manufacture of emissive screens,  
15 of the plasma screen or FED screen type, flat lamps, insulating vacuum glazing and thermochromic windows.